

UNITED STATES PATENT AND TRADEMARK OFFICE  
**CERTIFICATE OF CORRECTION**

PATENT NO. : 7,474,648 B2  
APPLICATION NO. : 10/679439  
DATED : January 6, 2009  
INVENTOR(S) : Jonsson et al.

3  
Page 1 of 1

It is certified that error appears in the above-identified patent and that said Letters Patent is hereby corrected as shown below:

Figure 4c is missing in the Issued Patent, and should be added as shown on attached page.

In Column 1, Lines 41-51, delete "different times. ....(ISI)." and insert the same at Line 39, after "receiver at" as a continuation of the paragraph.

In Column 11, Line 13, delete "(step 427)." and insert -- 437 --, therefor.

Delete the title page and substitute therefore the attached title page showing the corrected number of drawing sheets in patent.

Note. This certificate supersedes Certificate of Correction issued June 15, 2010.





US007474648B2

(12) **United States Patent**  
Jonsson et al.

(10) **Patent No.:** US 7,474,648 B2  
(45) **Date of Patent:** Jan. 6, 2009

(54) **FILTERING MULTIPATH PROPAGATION DELAY VALUES FOR USE IN A MOBILE COMMUNICATIONS SYSTEM**

7,012,909 B2 \* 3/2006 Tanno et al. .... 370/335  
2002/0015399 A1 2/2002 Hirade  
2003/0039304 A1 2/2003 Terao  
2003/0202541 A1 \* 10/2003 Lin et al. .... 370/503

(75) Inventors: Elias Jonsson, Malmö (SE); Hiroaki Watabe, Tokyo (JP)

## FOREIGN PATENT DOCUMENTS

(73) Assignee: Telefonaktiebolaget L M Ericsson (publ), Stockholm (SE)

EP	0989685 A2	3/2000
JP	2002198864 A	7/2002
WO	W000/21201	4/2000
WO	00/55992	9/2000
WO	01/45295 A	6/2001
WO	02/29996 A2	4/2002
WO	02/082676 A1	10/2002

(\* ) Notice: Subject to any disclaimer, the term of this patent is extended or adjusted under 35 U.S.C. 154(b) by 763 days.

(21) Appl. No.: 10/679,439

(22) Filed: Oct. 7, 2003

## (65) Prior Publication Data

US 2004/0259576 A1 Dec. 23, 2004

## Related U.S. Application Data

(60) Provisional application No. 60/479,151, filed on Jun. 18, 2003.

## (51) Int. Cl.

H04B 7/216 (2006.01)

(52) U.S. Cl. .... 370/342; 370/350; 455/67.16

(58) Field of Classification Search .... 370/350,

370/328, 335, 342; 455/434, 502, 67.16

See application file for complete search history.

## (56) References Cited

## U.S. PATENT DOCUMENTS

6,480,558 B1 \* 11/2002 Ottosson et al. .... 375/350  
6,510,143 B1 1/2003 Bejjani et al.  
6,519,276 B1 2/2003 Kim et al.

European Search Report, completed Jun. 28, 2007, in connection with European Application No. 06 077 230.8.

\* cited by examiner

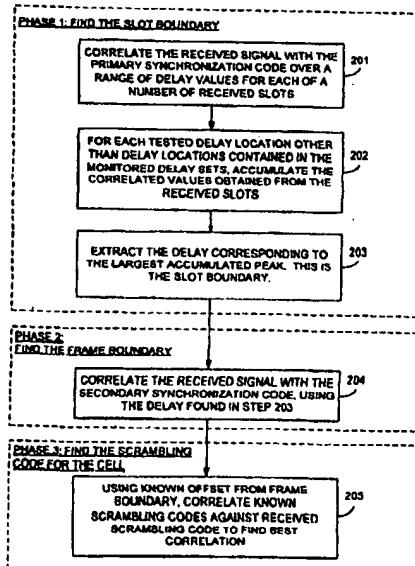
Primary Examiner—Nguyen Vo

(74) Attorney, Agent, or Firm—Potomac Patent Group PLLC

## (57) ABSTRACT

A time slot boundary of an unknown cell in a telecommunications system is identified by correlating a received signal with a known code over a range of delay values for each of one or more time slots, wherein the known code is used by all cells in the telecommunications system. Only for each of the delay values that are not associated with a known cell, correlation values obtained at each of the one or more time slots are accumulated. The time slot boundary is identified by determining which of the delay values is associated with a highest accumulated correlation value. One or more stored monitored delay sets may be used to determine which delay values are not associated with a known cell. The one or more stored monitored delay sets may be filtered using delay information obtained over a period of time.

54 Claims, 6 Drawing Sheets



CERTIFICATE OF CORRECTION (continued)  
U.S. Pat. No. 7,474,648 B2

3 3  
Page 1 of 1

423

FORCE BEST NEWLY-FOUND DELAY VALUES TO  
REPLACE WORST OLD DELAY VALUES

SELECT NEWLY-FOUND DELAYS WHOSE  
POWER VALUES ARE AT LEAST A  
FACTOR OF  $\alpha_{NOISE}$  ABOVE THE NOISE  
FLOOR  
(# SELECTED =  $N_{SELECTED}$ )

435

SELECT  $N_{SELECTED}$  REMAINING OLD  
DELAYS OF THE LOWEST QUALITY  
VALUES

437

REPLACE THE  $N_{SELECTED}$  OLD DELAYS  
WITH THE  $N_{SELECTED}$  NEWLY-FOUND  
DELAYS

439

RETURN

FIG. 4C